

[HIGH-K TUNNELING DIELECTRIC FOR READ ONLY MEMORY DEVICE AND FABRICATION METHOD THEREOF]

Abstract

A fabrication method for a read only memory device with a high dielectric constant tunneling dielectric layer, wherein this method provides forming a tunneling dielectric layer on a substrate, wherein the tunneling dielectric layer is formed with HfSiON or HfO_xN_y . An electron trapping layer and a top oxide layer are sequentially formed over the tunneling dielectric layer. Thereafter, the oxide layer, the electron trapping layer and the tunneling dielectric layer are patterned to form a plurality of stacked structures, followed by forming doped regions in the substrate between the stacked structures. Buried drain oxide layers are further formed over the surface of the doped regions, followed by forming a patterned conductive layer as the word line for the read only memory device.